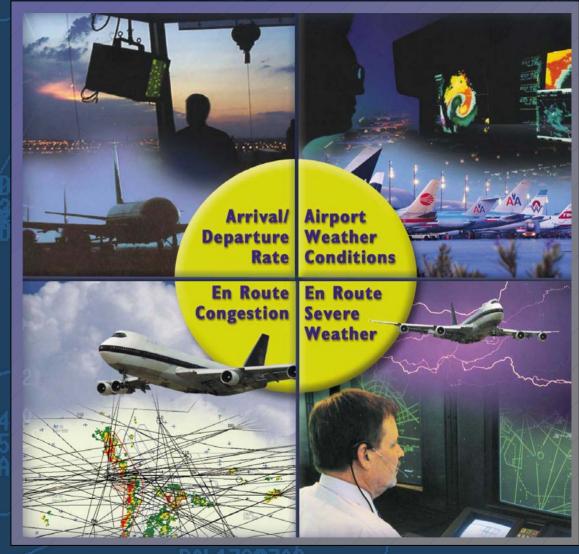
330C PIT 580+ HNN31

Operational Evolution Plan

Industry Day Briefing 12/09/02

7 AAL403 280C DFW 340

> TWA894 330C -IAD 580



370C LGA 590 LGA 590





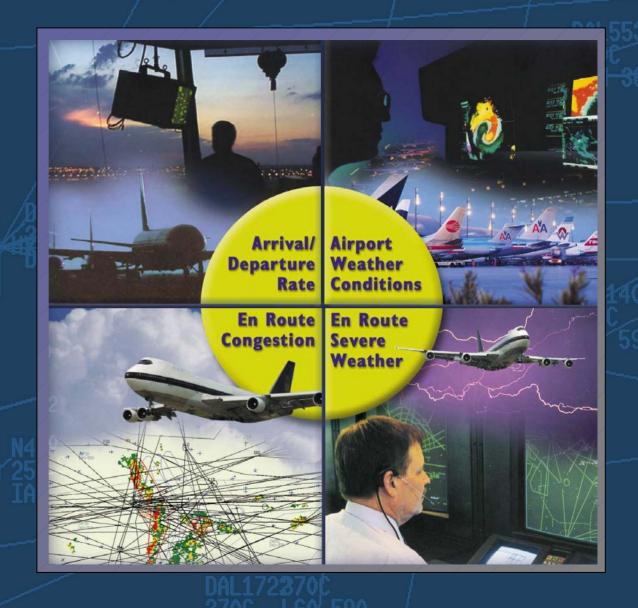
	/ / / / / / / / / / / / / / / / / / / /	/ IIAI 349/
Noon	Welcome and Introductions V5.0 Snapshot	Amr ElSawy
1220	Accomplishments, Experience and Performance • Recognize PODs	Gisele Mohler Andy Anderegg Bob Swensson
1335	Break	22UL 90√305 / P
1350	Metrics Report	Cynthia Morris
1405	OEP Challenges • Integrated Schedules • Equipage	Charlie Keegan • Mamie Mallory • Ardy Williams
1455	N4000K Break 1959 N347H3	/
1510	Looking Ahead to v6.0 Process, Timing, Milestones	Bob Lamond
1520	Questions and Answers Wrap-up MM0463 AAL1428 DAL1723700 3700 LGA 590	Charlie Keegan Other Associates Col. S. Atkins

Operational Evolution Plan

Industry Day Briefing 12/09/02

Introductions V5.0 Snapshot

Amr ElSawy General Manager MITRE CAASD



Agenda



		AUSTR.
Noon	Welcome and Introductions V5.0 Snapshot 3100 STL 340	Amr ElSawy
1220	Accomplishments, Experience and Performance • Recognize PODs	Gisele Mohler Andy Anderegg Bob Swensson
1335	- Break	22UL
1350	Metrics Report	Cynthia Morris
1405 320	OEP Challenges • Integrated Schedules • Equipage	Charlie Keegan • Mamie Mallory • Ardy Williams
1455	N4000kBreak	
1510	Looking Ahead to v6.0 Process, Timing, Milestones	Bob Lamond SSU
15203 4 6 6 6	Questions and Answers Wrap-up DAL1723700 3700 LGA 590	Charlie Keegan Other Associates Col. S. Atkins

Operational Evolution Plan

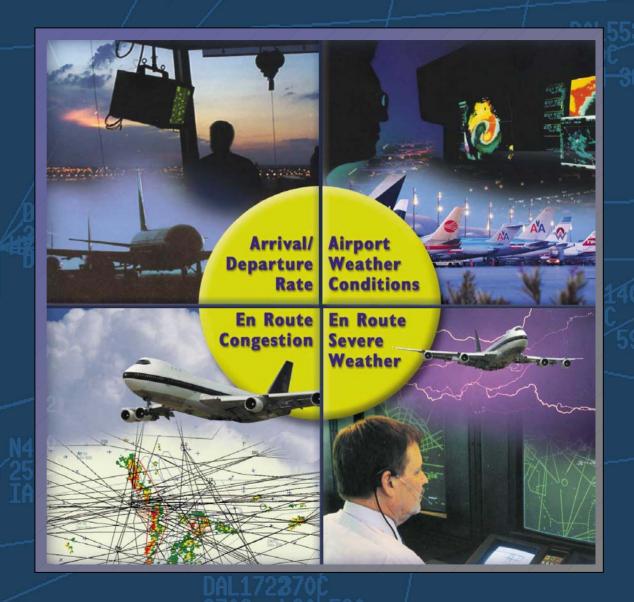
Industry Day Briefing 12/09/02

Accomplishments, Experience and Performance

<u>A Report Card of Progress</u>

Gisele Mohler Andy Anderegg Bob Swensson

Operational Evolution Staff



Goals of the NAS Operational Evolution Plan



- ✓ Describe the operational evolution of the NAS as it relates to <u>increasing capacity</u> while maintaining safety
- ✓ Derive a set of credible initiatives that focus the aviation community on solutions for the next 10 years
- Link these initiatives to a timetable and specific activities required of each member of the community
- ✓ A process more than a document, and is designed to
 - □ force a disciplined dialogue on operational issues
 - ensure policy and joint industry decisions are planned and recorded in the official plans of the agency

Capacity/Delay - Owned by the Community





NAS Operations Evolution At A Glance



✓ ✓ New runways in service at benchmark airports

More Precision Approaches

FFP1 Tools

Optimize airspace en route and surrounding most benchmark airports

Choke V
Point
actions

RVSM

Sat NAV En route

Data link

Enhanced Surveillance

Metering & CDM Strategy

RNAV/RNP Policy

CNS Packaging

High Altitude Strategy

2002

2003

2004

2005

2006

2007 +

Arrival/Departure Rate Airport Configurations Runway Additions Allow Improved Use Crossing Runway Procedures Redecion Terminal Aliabace & Rollies Fili Gaps in Arrival & Departure Streams Arrival/ Coordinate for Efficient Departure Surface Movement Rate



AD-1 Build New Runways



Runways Operational at Miami & Denver

Schedule Kev = Commitment Planning

Runways Operational at Houston & Orlando



Runways Operational at Minneapolis & Cleveland (Phase II)



Runways Operational at Boston, St. Louis, Atlanta & Cincinnati



Runway Operational at Dulles



Runway Operational at Seattle



FY

2003 2004

2005

2006

2007

2008

2009

2010

2011

2012

2013

FY

AD-2 Use Crossing Runway Procedures



New Intersecting Runway
Procedures at ORD, MIA,
HNL, LAS, LGA

Additional Crossing
Runway Procedures at 16
other airports

Schedule Key

▼ = Commitment

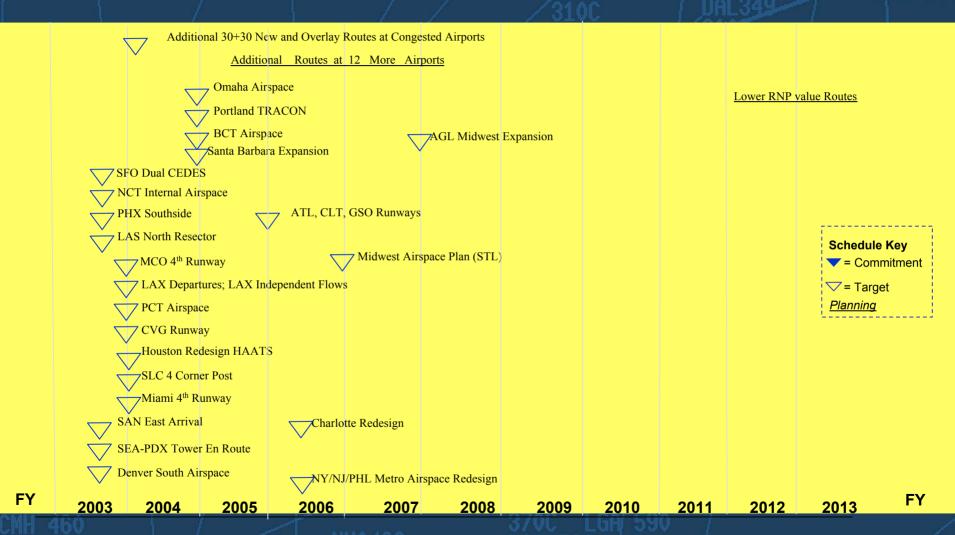
▽ = Target

Planning

FY 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 FY

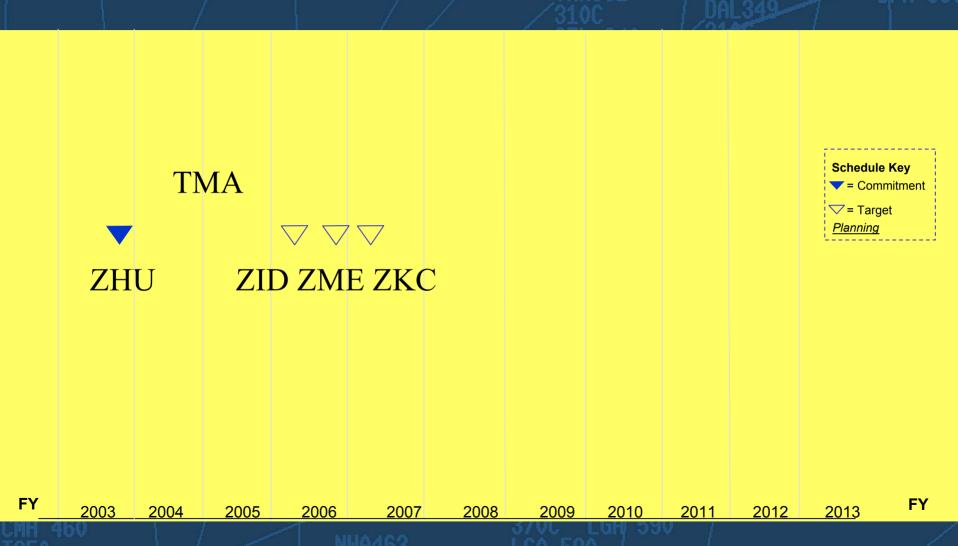
AD-3 Redesign Terminal Airspace & Routes





AD-4 Fill Gaps in Arrival & Departure Streams





AD-6 Coordinate for Efficient Surface Movement





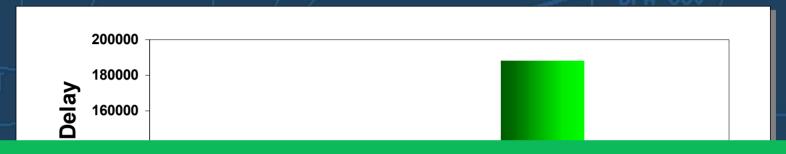


2002 Accomplishment: New Runway Entered Service at Detroit

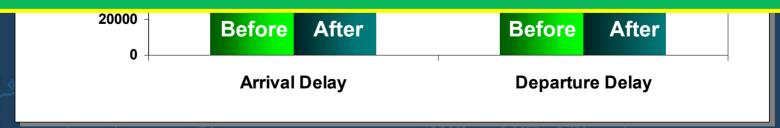
- ✓ The Detroit runway became operational December 11, 2001
 - By Spring 2002, the Airport Capacity Visual Meteorological Conditions index, representing the available capacity was up 16%



Performance Change: Detroit a Month Before and After New Runway



Savings of \$3.2 million in a single month, facilitated by associated airspace redesign



2002 Accomplishment & Performance Change All Choke Point Actions are Complete

ESTIMATED USER BENEFITS OF THE NATIONAL CHOKE POINTS INITIATIVE M. Stevens, K. Gormley, F. Moreno-Hines March 25, 2002

BACKGROUND

At the request of the FAA, ATA-200, MITRE conducted a review of the user benefits associated with the Choke Points Actions (CPAs) implemented in support of the National Choke Points Initiative. This report provides a user benefits analysis based on the findings outlined in the September 12, 2001 report entitled "Improvements in the National Airspace System Based on Actions Taken in Support of the National Choke Points Initiative." The September report estimates the impact that improvements made to each of the seven Choke Points (CPs) had on ground and airborne delays in the NAS. Improvements were estimated comparing delay data from February to August 2000 (before the CPAs were implemented) to February to August 2001 (after the CPAs were implemented).

STUDY APPROACH

To estimate the user benefits associated with the system improvements identified in the September report, the delay savings were translated into the average delay reduction per flight in minutes. The delay data used in this analysis was obtained from Aviation System Performance Metrics (ASPM) and Operations Network (OPSNET) databases. The average Aircraft Direct Operating Cost (ADOC) per minute was applied to the delay reductions to estimate the overall cost savings realized by users as a result of improvements made to the seven national choke points (see Table 1).

Table 1: Estimated Cost Savings Associated with Choke Points Improvements

Tube 1: Estimated Cost Davings : Esterated with Choice I office Improvements									
CP#	Choke Points Initiative Related Benefit	Average Belay Reduction per Flight in minutes	F of Relevant Flights from Feb - Aug 2001	Form 41 Direct Operating Costs / Minute	Potential Secrets of Reduced Operating Costs in Millions				
	Decreased Departure Delay for NY Westgate Departures	1.9	108,971	\$21.98	\$4.5	NY Weather Delays Decreased			
2	Decreased Departure Delay for Northgate Departures	2.2	83,162	\$21.98	\$4.1	NY Weather Delays Decreased			
3	Decreased Departure Delay for DC Departures	1.5	49,014	\$21.98	\$1.6	DC Weather Delays Decreased Significantly			
3	Decreased Arrival Delay for NY Arrivals	3.1	57,353	\$29.40	\$5.3	NY Weather Delays Decreased			
4	Departure/Airborne Delay Decreased for Departures over J547, but not Significantly	а	а	\$21.98	\$0.0				
S and 6	Decreased Departure Delay for GL Departures (without CVG due to Cornair Strike)	1.5	684,735	\$21.98	\$22.6	Operations Decreased Slightly			
7	Departure Delay Decreased Significantly for Certain DTW & ORD Departures, However, Departure Delay Reduction for These Arports is included in CPs 5 and 6.	\$21.98	\$0.0						
Total	Improvements in Westgate Departure Dela DC Departure Delay, NY Arrival Delay	\$38.0							

The estimated ADOC used in Table 1 is based on 1996 Department of Transportation (DOT) Form 41 data, published in 1998 by the Office of Aviation Policy and Plans (APO), assuming a NAS representative traffic mix, and translated into 2001 US dollars. The ADOC estimates were translated into 2001 values using the methodology outlined in the FAAA Airport Benefit-Cost

©2002 The MITRE Corporation. ALL RIGHTS RESERVED.

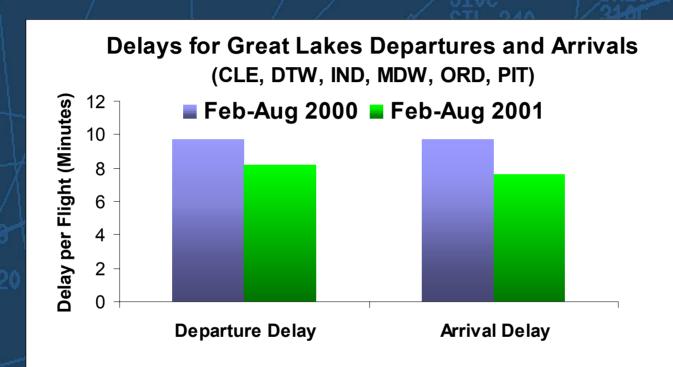
	Average Delay Reduction per Flight (minutes)	Operating Cost Benefits*	
Decreased departure delay for NY Westgate	12201.9	\$4.5M	
Decreased departure delay for NY Northgate	2.2 2.2	\$4.1M	
Decreased departure delays for DC departures	1.5	\$1.6M	
Decreased arrival dela for NY arrivals	y 3.1	\$5.3M SSU	
Decreased departure delay for AGL departures	1.5	\$22.6M	

Equivalent annual savings ~\$65M

^{*} Benefits assessed over 7 month period





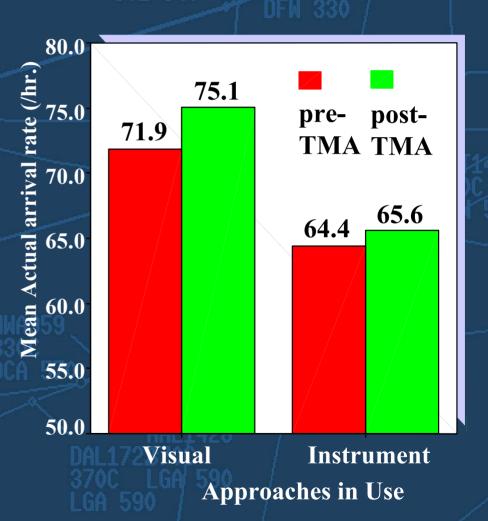


\$39 million per year

2002 Accomplishment & Performance Change: Traffic Management Advisor (TMA) at Seven Sites



Three sites (Dallas, Minneapolis, and Los Angeles) experienced a five percent increase in throughput, and Denver experienced a two percent gain



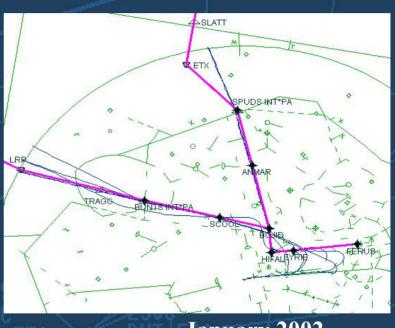
2002 Accomplishment: New and Overlay Area Navigation (RNAV) Routes



✓ 40 RNAV routes completed.



April 2001



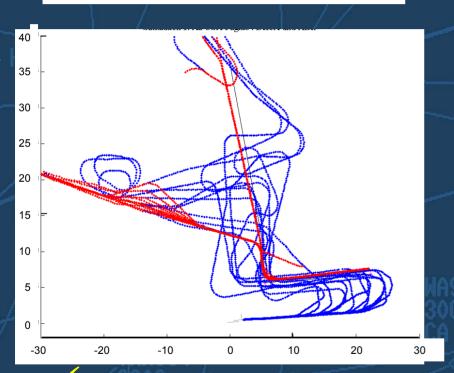
January 2002

Voice and automation data analysis show that it is possible to reduce A/G communications by 30% to 50%

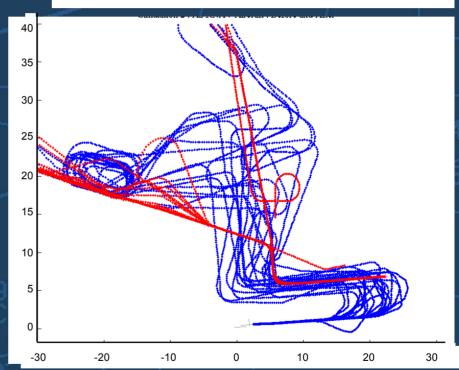
Performance Change: Time and Distance Benefits at Philadelphia



Simulation 1: All USA Flights: Before and After



Simulation 2: All RNAV Aircraft: Before and After



- **✓** Avg. Time Saved: 2-4 min per flight
- **✓** Avg. Distance Saved: 13 15 nmi per flight

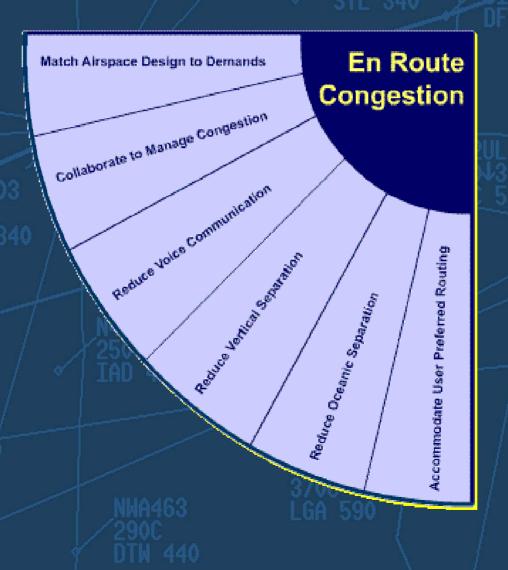
2002 Accomplishment: Las Vegas Four Corner Post Airspace Redesign



- ✓ Las Vegas implemented the Four Corner Post Airspace Redesign in December 2001
- ✓ Preliminary results confirmed predictions of significant user savings
 - □ One user reported preliminary savings equate to an annualized savings of \$45 million

En Route Congestion Quadrant Level Review





En Route Congestion

ER-1 Match Airspace Design to Demands

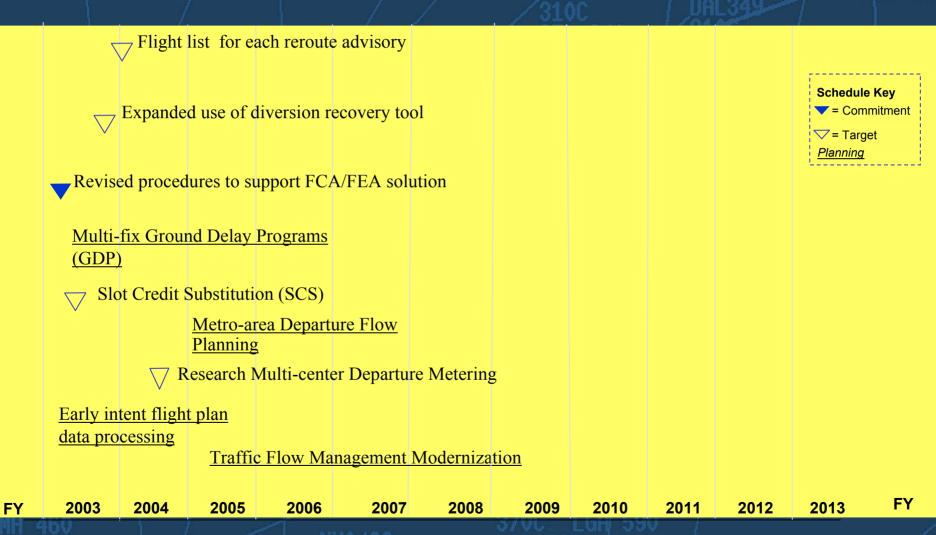


High A	Altitude Initial	Implementat	ion			High All	titude Phase	3				
	∇	High Altituc	e Phase 1 Ex	7	ude Phase 2 Ex	kpansion					Schedule ▼ = Comm ▽ = Targe	nitment
			$\overline{\vee}$	High Altitude	Initial Phase 2						<u>Planning</u>	
		$\overline{}$	Kansas City	ARTCC East E	nd Redesign							
	\bigvee	, Atlanta No	rth South Flo	ows	Bay-to-Basin	Redesign Corridor (ZOB	ZMD ZID S	7.1 11)				
	\bigvee	ZOA/NCT F	edesign 7 Interior Ala	aska	Great Lakes	Corridor (ZOB	, ZIVII , ZID, Z	ZAO)				
		ZDV Rede	sign	Southeast Alas	ka							
	ZAN Ocean	Redesign; Z		rspace 4 Corner post/A	rea Realignme	nt						
		$\overline{}$	ZSE Rede	sign								
	_	7 Caribbear	Reroutes	ZOA Oceani ZMA/ZHU	_							
FY	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	FY

En Route Congestion

ER-2 Collaborate to Manage Congestion

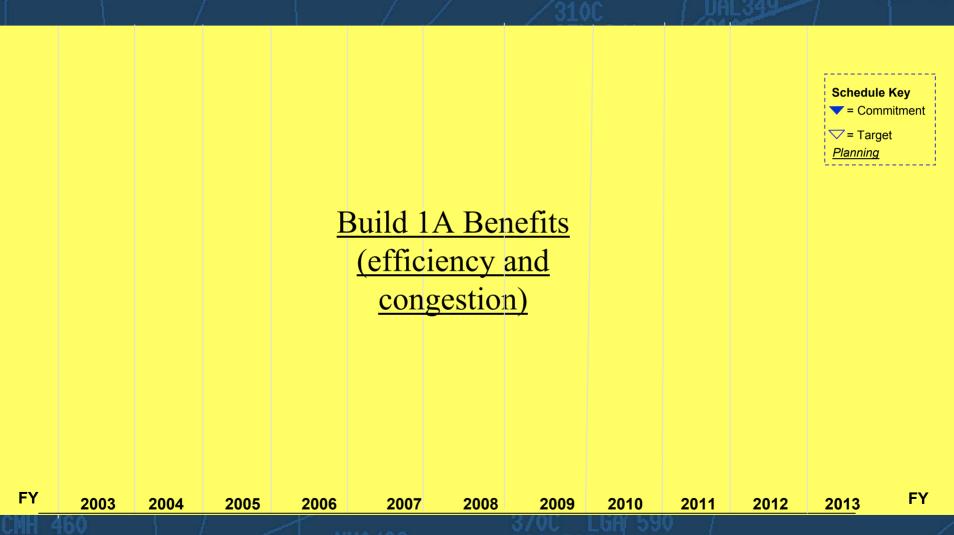




En Route Congestion

ER-3 Reduce Voice Communication

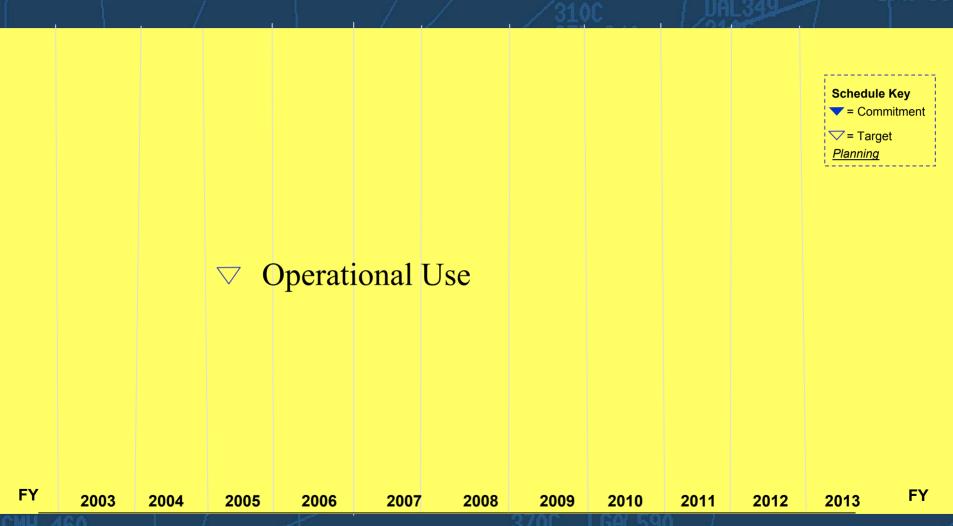




En Route Congestion

ER-4 Reduce Vertical Separation





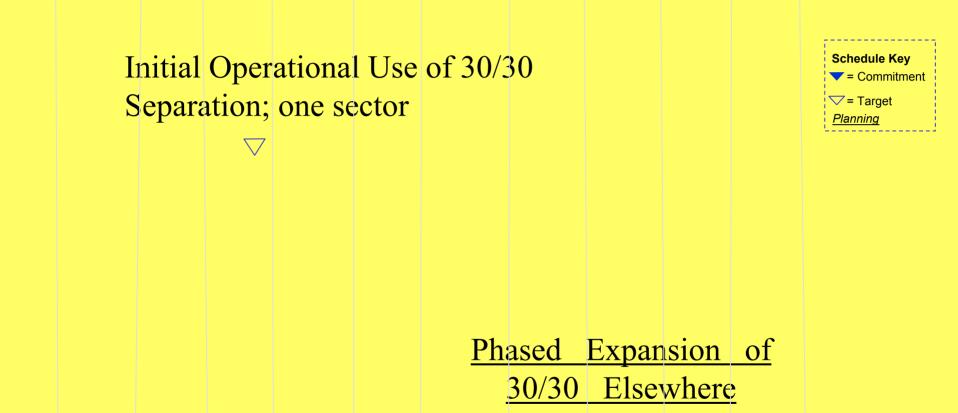


FY

ER-6 Reduce Oceanic Separation



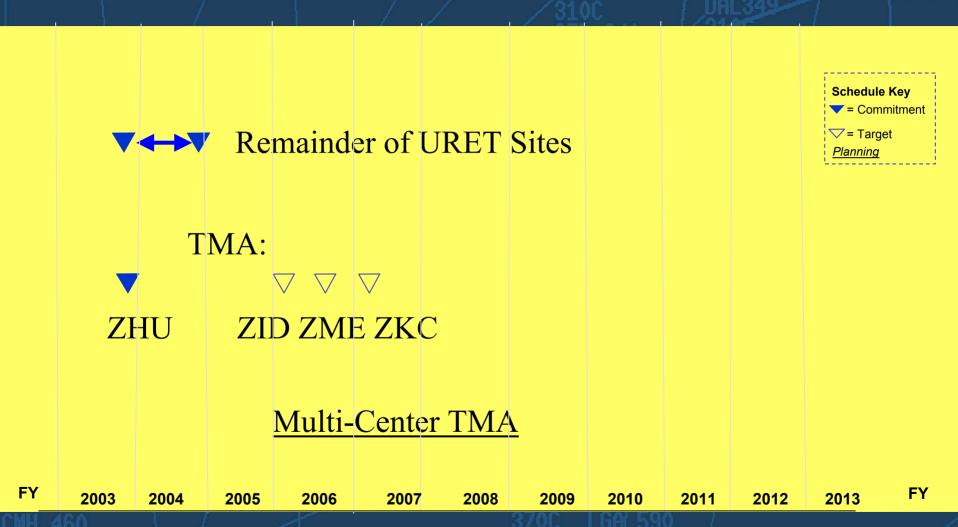
FY





ER-7 Accommodate User Preferred Routing

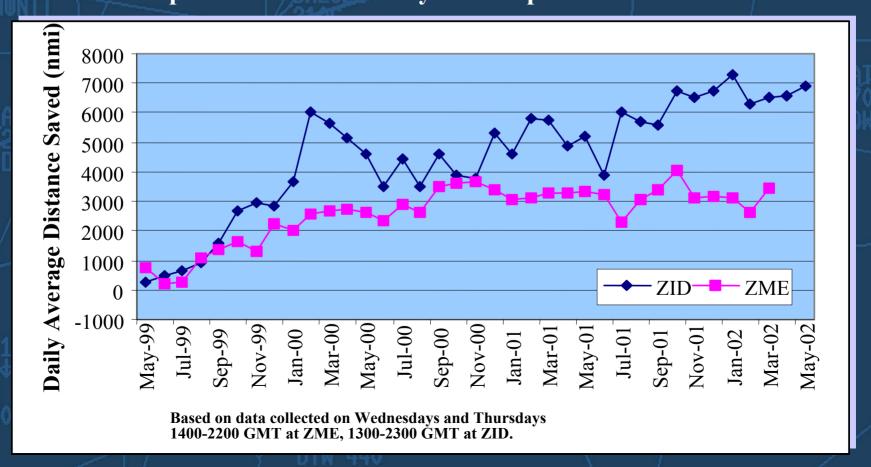




2002 Accomplishments: User Request Evaluation Tool (URET) at 6 Centers



Distance saved from lateral amendments
URET has allowed restriction removals and lateral amendments have saved approximately 7000 nautical miles (nmi)/day at Indianapolis and 3500 nmi/day at Memphis



Example URET Altitude Restriction Removal Results



	History of Indianapolis Evaluations								
<u>-</u>	Restrictions Lifted	Estimated Annual Fuel	Estimated Annual \$ Savings						
 		Savings (gal)	@ \$1.00 per gal.						
	Restrictions Lifted April-November 2000	230,000 NHA959 N3	\$ 230,000 RNL						
10	Restrictions Lifted March-April 2001	DCA 57770,000 AAL	\$ 770,000 1428						
50	Estimated Annual Savings	1,000,000	\$ 1,000,000						

2002 Accomplishment: Controller Pilot Data Link Communications (CPDLC) Build 1 at Miam

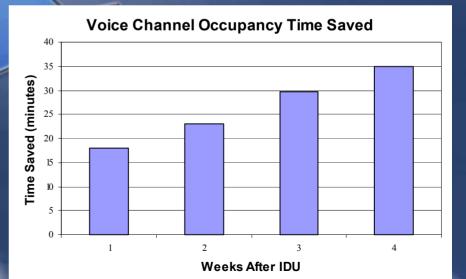
Miami ARTCC



- Single-site deployment
 - ☐ Key site: Miami Air Route Traffic Control Center (ARTCC)
 - ☐ Key site Initial Operational Capability (IOC): 6/02
 - ☐ American Airlines is the launch airline

Note:

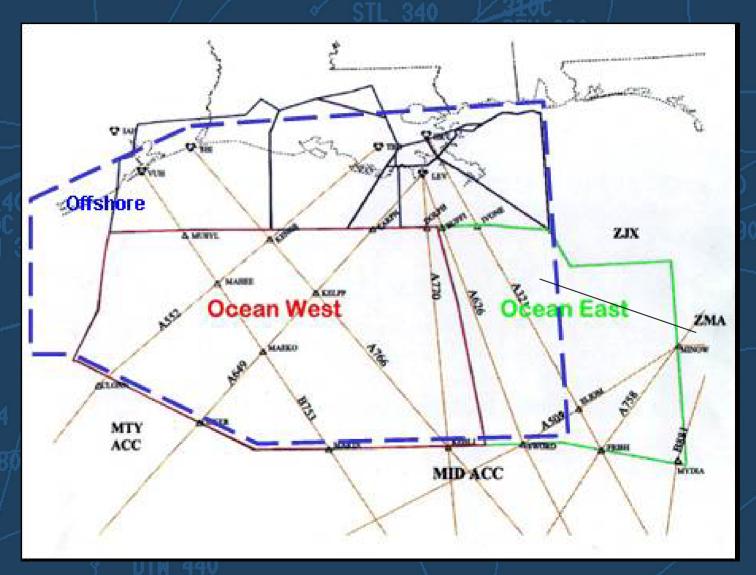
Voice channel occupancy times obtained by simulating controller-pilot voice transactions for transfer of communications equivalent to CPDLC Contact, Monitor/CAL, and CAL messages.

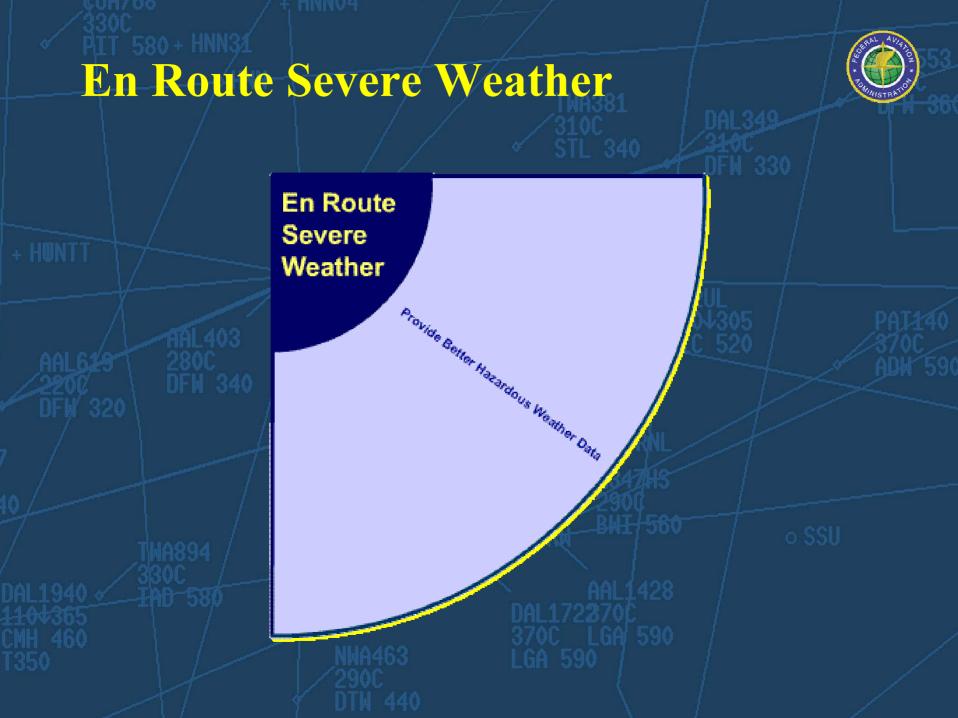


Gulf of Mexico RNAV routes have been implemented DAL



✓ Q Routes estimated to save \$21.6M annually in Gulf of Mexico





En Route Severe Weather

EW-1 Provide Better Hazardous Weather Data



CCFP best practices

CIWS Ops Plan

Prototype 4/6 hr RUC

▼Start CCFP/2003

▼Convective & icing forecast on ETMS and WARP

Initiate Post-analysis.& feedback: CCFP

Schedule Key

▼ = Commitment

▽ = Target

Planning

FY

nformation System Operational

Help

Edit View Go Communicator

ATCSCC OIS **SYSTEM**

06 14 00 1615:33

OIS Main Menu

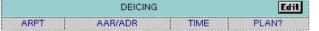
- **±** Summary ± Schedules
- **±** East Directory
- **West Directory** + Planning Team
- Severe Weather
- ± Tier Info
- ± Checklists ± Airport Metrics
- **GDP** Coversheets OJT Info SOP (leave OIS) Phone List Comments Trouble Reports Equipment Callback

(Note: This page will refresh every minute. Last updated Wed, 14 Jun 2000 20:14:57 GMT.)

	GROUND DELAY PROGRAMS Edit								
ARPT	START	END	FACILITIES	REASON	MAX	AVG	AAR		
ATL	1809	2359	ZTL2 - DFW	WX ENROUTE	74	38	80		
DFW	1800	0259	ALL	THUNDERSTORMS	150	39	72		
EWR	1800	0359	ALL CYYZ/CYUL/CYOW/CYHZ	SUPPORT OF SWAP	354	276	5		
LGA	2030	0159	NOWEST	TSTRMS ENRTE/SWAP	301	242	-28		
РНЬ	1600	2359	ALL CANADA	LOW CEILINGS	267	150	30		
STL	1900	0159	ALL	TSTMS	197	113	32		

		GROUND STOPS	Ed
ARPT	TIME	FACILITIES	REASON
BOS	2030	ZDC/ZTL/ZJX/ZMA/ZHU	THUNDERSTORMS ON RTE
BWI	2100	ZID/ZOB/ZMP/ZAU/ZKC/ZME/ZFW	WX EN RTE
CLE	2100	ZNY/ZDC/ZID/ZAU/ZBW/ZOB/ZMP	WEATHER/TSTMS
CLT	2100	ZDC/ZNY/ZBW	TSTMS
CVG	2015	ZID/ZOB/ZNY/ZBW/ZDC	TSTMS
DCA	2100	ZID/ZOB/ZMP/ZAU/ZKC/ZME/ZFW	WX EN RTE
DTW	2100	ZDC/ZJX/ZTL/ZMA/ZAU/ZBW/ZID/ZMP/ZNY/ZOB	TSTMS ENROUTE
IAD	2000	ZID/ZOB/ZMP/ZAU/ZKC/ZME/ZFW	WX EN RTE
JFK	2030	ZDC/ZJX/ZMA/ZTL/ZME/ZHU/ZFW/ZAB/ZLA	TSTRM ON RTE
LGA	2030	ZDC/ZJX/ZMA/ZTL/ZME/ZHU/ZFW/ZAB/ZLA	TSTRM ON RTE
MDW	2100	ZAU/ZID/ZME/ZTL/ZDC/ZJX/ZMA/ZOB/ZNY/ZBW	TSTMS
ORD	2100	ZAU/ZID/ZOB/ZMA/ZJX/ZTL/ZME/ZDC/ZNY/ZBW	TSTMS/NO ROUTES
STL	2100	ZNY/ZBW/ZOB/ZID/ZDC	TSTMS
TEB	2030	ZDC/ZJX/ZMA/ZTL/ZME/ZHU/ZFW/ZAB/ZLA	THUNDERSTORMS ON RTE
ZOB	2100	ZTL/ZJX/ZMA	NO ROUTES/WX

DELAY INFO Edit							
ARPT	AD	DD	TIME	REASON			
ATL		+90	1800	ORD G/S			
ATL		+60	2001	WX			
BOS		+135	1920	SWAP			
BWI		+15	1703	LDN/AML RSTRN			



2002 Accomplishment: Collaborative Convective Forecast Product Extended Range Forecast of Thunderstorms is Available on the Command Center Website

Collaborative
Convective
Forecast
Product
Final
RTVS
VERIFICATION

Valid Time: Jun 12, 2001 21Z

Issuance Time: Jun 12, 2001 15Z

Forecast Length: 6hr

PODy: 0.25 CSI: 0.12 Heidke: 0.19 FAR: 0.81 % Area: 4.63 Bigs: 1.30

FORECAST COVERAGE

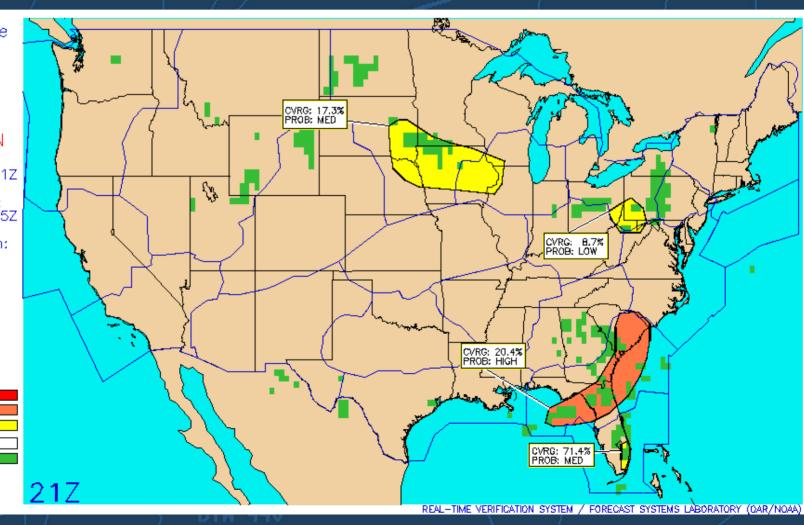
HIGH = 74-100% MED = 50-74%

LOW = 25-49%

Actual % Coverage NOWD

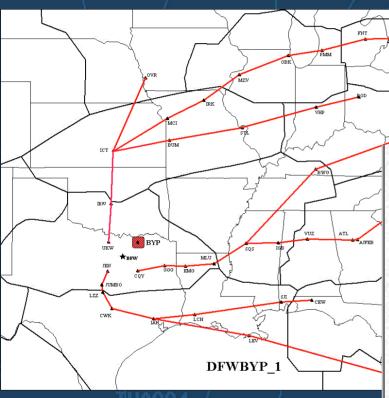
PROB OF OCCURENCE:

MED = 4D - 69%LOW = 1 - 39%



2002 Accomplishment: The Playbook Has Been Expanded to 114 Plans to Provide More Options





✓ Often used in SPO and other advisories

DFWBYP 1

Impacted Resource: DFW BYP STAR

Impacted Flow: DFW TERMINAL ARRIVALS VIA BYP

Action: REROUTE LIT TRAFFIC TO CQY; REROUTE FSM TRAFFIC TO UKW; REROUTE NORMAL CQY TRAFFIC TO JEN

Facilities Included: ZFW/ZME/ZID/ZDC/ZNY/ZBW/CZY/ZTL/ZHU/ZJX/ZMA/ZKC/ZAU/ZOB/ZMP

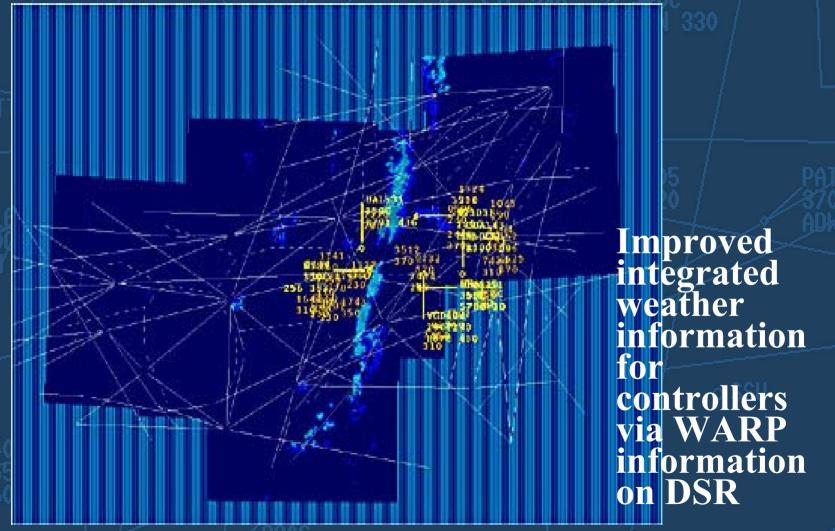
Instructions: REROUTE ANY AIRBORNE TRAFFIC AND INTERNAL DEPARTURES DESTINED THE DFW TERMINAL AREA VIA THE FOLLOWING ROUTES. SUBSTITUTE OTHER DESTINATION IN PLACE OF DFW IF APPLICABLE.

\searrow	FACILITY	ROUTING	TIM	ALT	REMARKS
\neg	ZME	SQS CQY4 DFW			
-	ZID (OVERFLIGHTS)	J6 BWG SQS CQY4.DFW			
	ZID (INTERNALS)	STL J19 ICT IRW UKW6 DFW			
	ZDC (IAD/DCA/BWI)	LDN J134 COLNS J6 BWG SQS CQY4 DFW			
	ZNY	MRB J6 BWG SQS CQY4 DFW			ZNY "DFWQ6" CDRs
	ZBW	SYR J547 FNT J94 OBK MZV IRK J26 ICT IRW UKW6 DFW			
63	CZY	YXU J547 FNT J94 OBK MZV IRK J26 ICT IRW UKW6 DFW			CHECK W/ ATCSCC REGARDING INT'L OVERFLIGHTS
	ZTL	VUZ J52 SQS CQY4 DFW			NORMAL RTE
4 4	ZDC (RDU/RIC/ORF)	SPA J14 VUZ J52 SQS CQY4 DFW			NORMAL RTE
40.00		· · · · · · · · · · · · · · · · · · ·			

✓ Used to coordinate routes during severe weather and other constraining situations



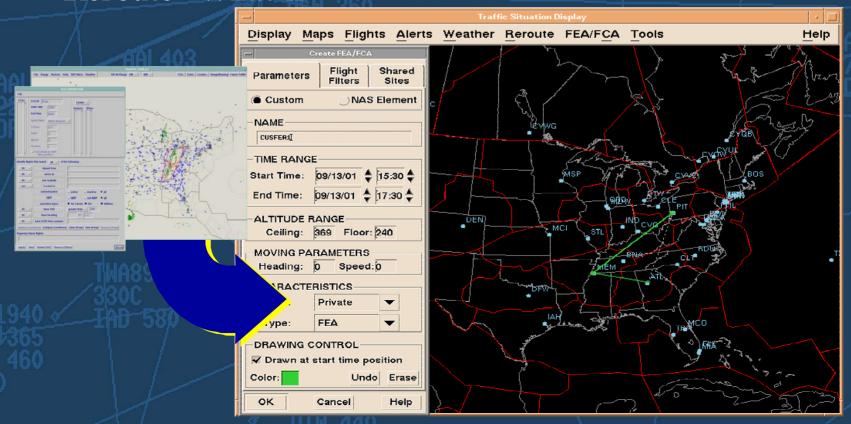






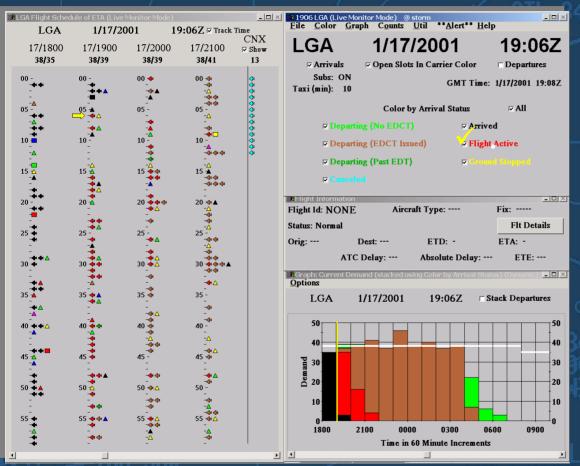
2002 Accomplishment: Flow Constrained Area (FCA) available on

Enhanced Traffic Management System (ETMS) enhanced with initial En Route Congestion Management capabilities
• Reroute "What-if"



2002 Accomplishment: Flight Schedule Monitor (FSM)

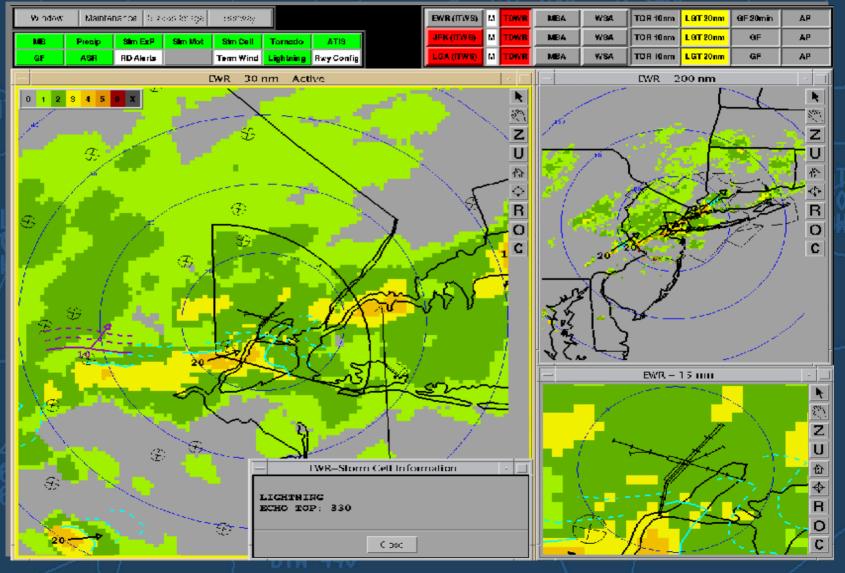




- Monitors airport demand and capacity balance
- ✓ Provides common situation awareness between FAA and airlines
- Provides traffic flow management options to the ATCSCC
- Issues ground delay programs (GDPs), ground stops(GSs) and other traffic management initiatives.
- Provides data analysis capability

2002 Accomplishment: Evaluation of Corridor Integrated Weather System





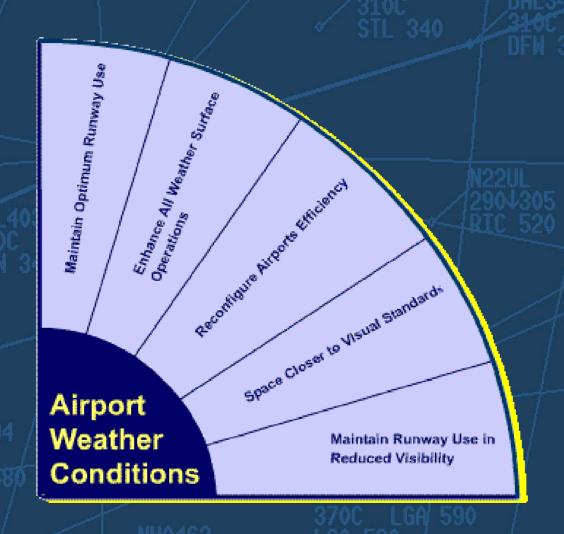




Routes for VACAPES Severe Weather Avoidance

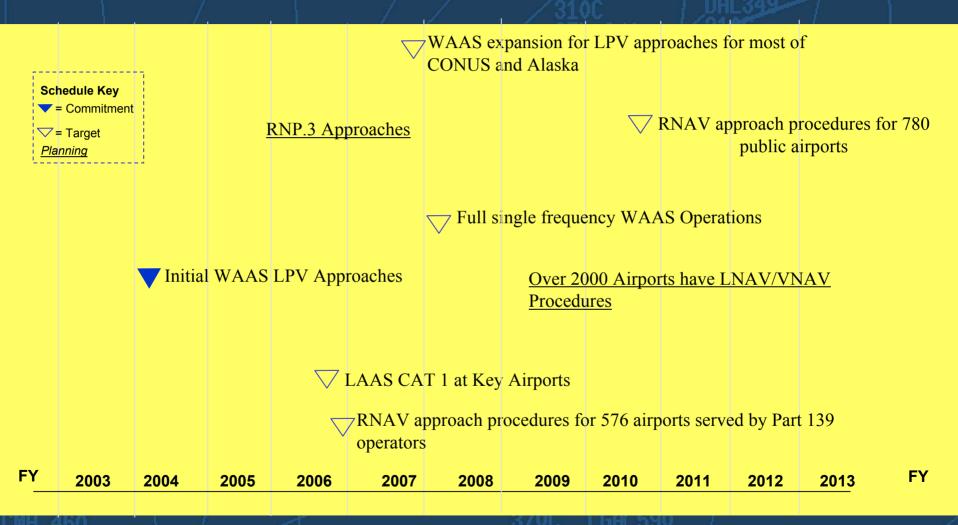






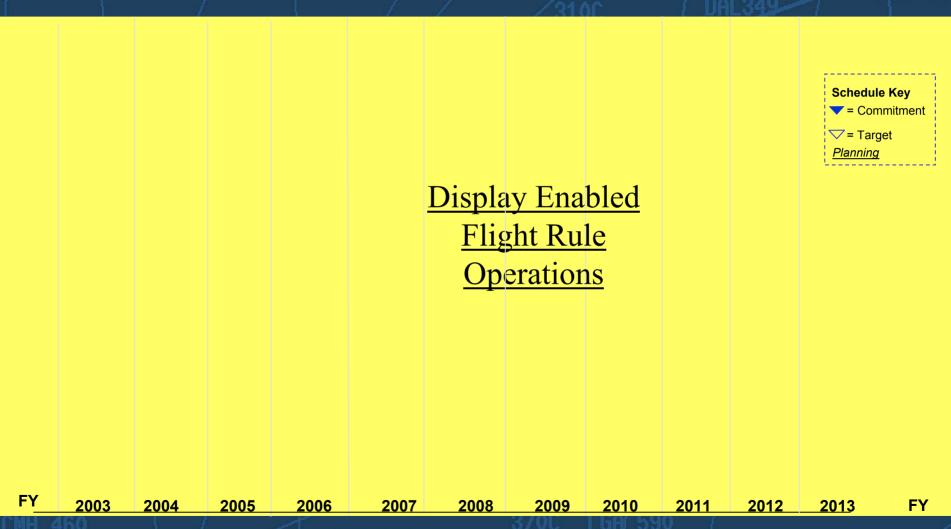
AW-1 Maintain Runway Use In Reduced Visibility





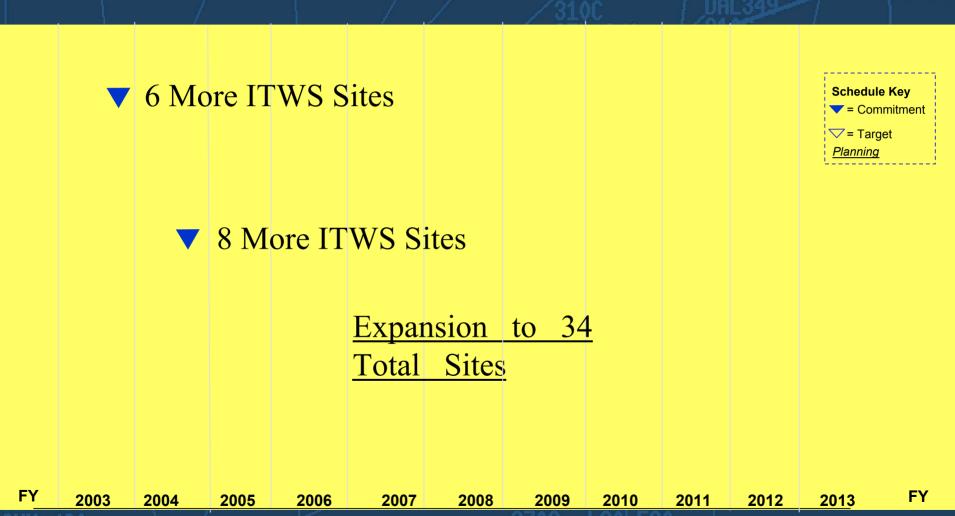
AW-2 Space Closer to Visual Standards





AW-3 Reconfigure Airport Efficiently





AW-4 Enhanced All-Weather Surface Operations





AW-5 Closely Spaced Parallel Runway Operations



∇ SOIA at SFO and STL

New Wake
Mitigation Measures

More Site Specific SOIA Procedures

Schedule Key

▼ = Commitment

▽ = Target

Planning

FY 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 FY

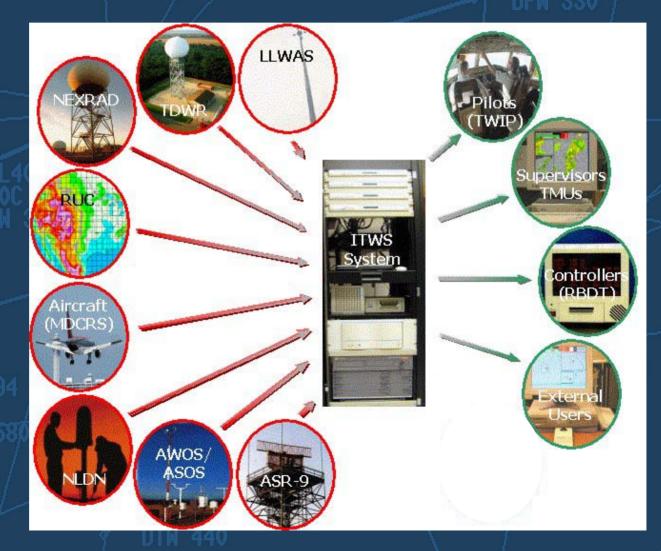




- ✓ Precision Runway Monitor (PRM) in Minneapolis
 - Provided an increase in arrival rates of six percent or better
 - ☐ Which equates to four more flights per hour, while in operation

The First Production Unit of the Integrated Terminal Weather System (ITWS) Is In Use at Atlanta





Runway Visual Range Data Is Now Provided to Users via Collaborative Decision Making Network (CDMNet) and Available to More Than 49 Airports





Precision Approaches Instrument Landing System (ILS) Has Been Implemented at 14 Airports







NWA463 290C DTW 440

Agenda HN



Noon	Welcome and Introductions V5.0 Snapshot	Amr ElSawy
1220	Accomplishments, Experience and Performance • Recognize PODs	Gisele Mohler Andy Anderegg Bob Swensson
1335	Break	22UL /
1350	Metrics Report	Cynthia Morris
1405 320	OEP Challenges • Integrated Schedules • Equipage	Charlie Keegan • Mamie Mallory • Ardy Williams
1455	N4000kBreak _{IA959} N347H3	
1510	Looking Ahead to v6.0 Process, Timing, Milestones	Bob Lamond
1520	Questions and Answers Wrap-up DAL 1722700	Charlie Keegan Other Associates Col. S. Atkins

Agenda H



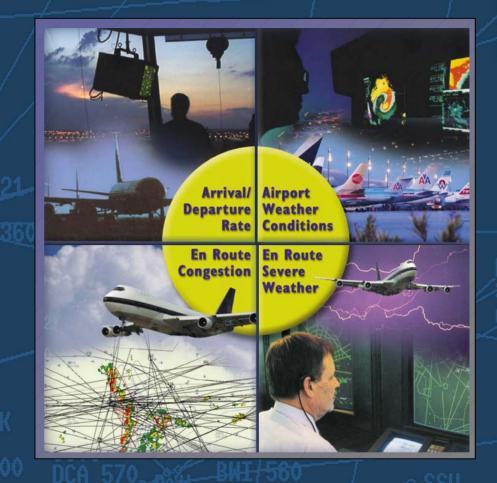
Noon	Welcome and Introductions V5.0 Snapshot	Amr ElSawy
1220	Accomplishments, Experience and Performance • Recognize PODs	Gisele Mohler Andy Anderegg Bob Swensson
1335	Break	22UL /
1350	Metrics Report	Cynthia Morris
1405 320	OEP Challenges • Integrated Schedules • Equipage	Charlie Keegan • Mamie Mallory • Ardy Williams
1455	N4000kBreak _{IA959} N347HS	
1510	Looking Ahead to v6.0 Process, Timing, Milestones	Bob Lamond SSU
1520	Questions and Answers Wrap-up DAL172270C	Charlie Keegan Other Associates Col. S. Atkins

Operational Evolution Plan

Industry Day Briefing 12/09/02

OEP Challenges Charlie Keegan

FAA Associate
Administrator
Research &
Acquisitions and
Director
Operational
Evolution Staff



Claire Robinson

Acting Deputy
Director Operational
Evolution Staff



New Entries in Version 5



SateIlite

Global Navigation Satellite System (GNSS)

Required Navigation Performance

En Route Application (e.g. parallel routes)

Approach Applications (e.g. parallel approach transition)

770C

Communications

Radar ¶

Airport
Traffic
Control
Tower
(ATCT)
Systems

AOC Systems

NAVAIDs

SATCOM Ground Stations ATCSCC Systems

Air/Ground M Communications

En Route Systems

Airp

Airport Landing, Weather, Lighting



New Entries in Version 5



Communications
Satellite

Global Navigation Satellite System (GNSS)



Closely Spaced Runways (e.g. along track separation; wake procedures)



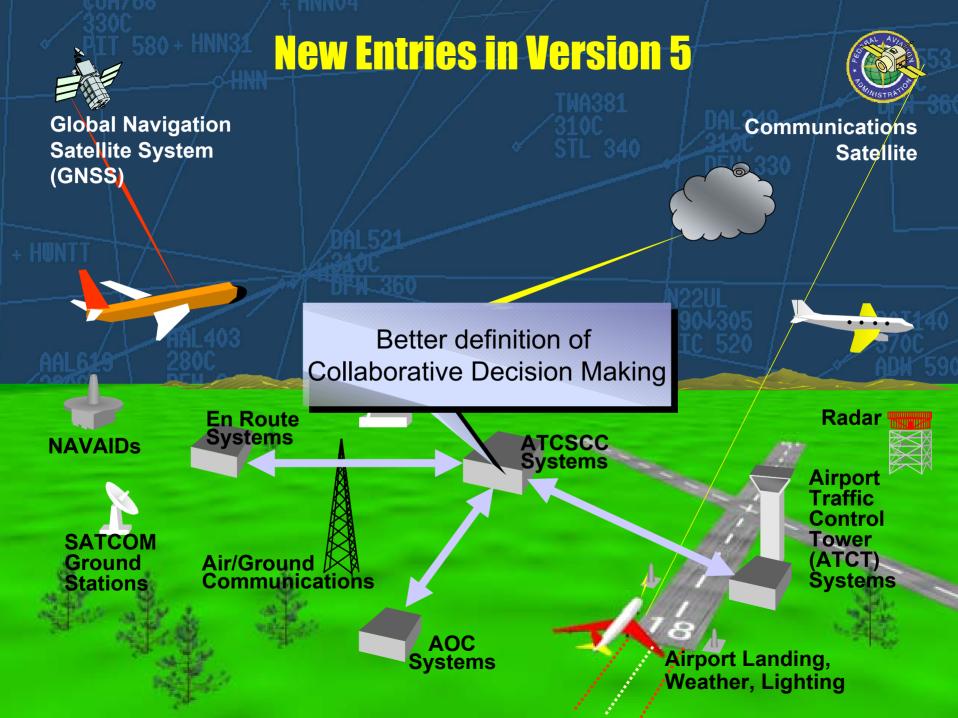
SATCOM Ground Stations

Air/Ground Communications

AOC Systems Radar

Airport Traffic Control Tower (ATCT) Systems

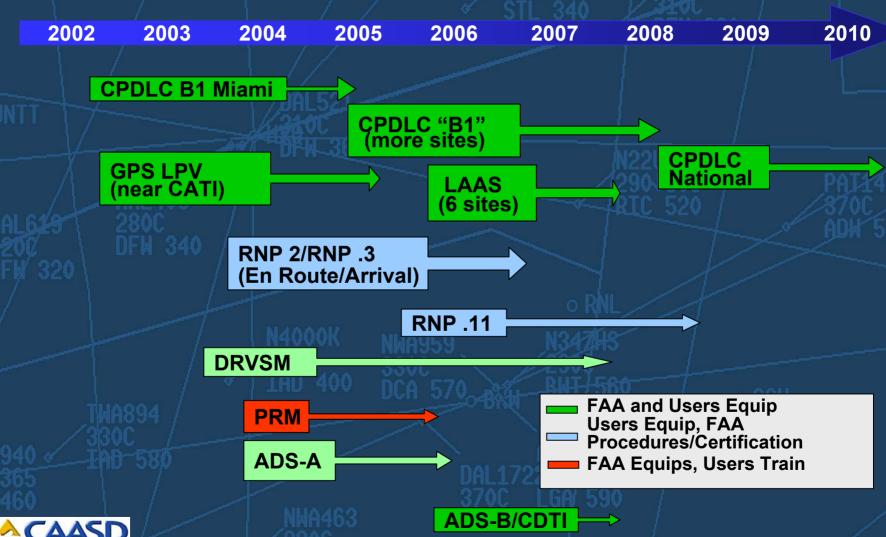
Airport Landing, Weather, Lighting

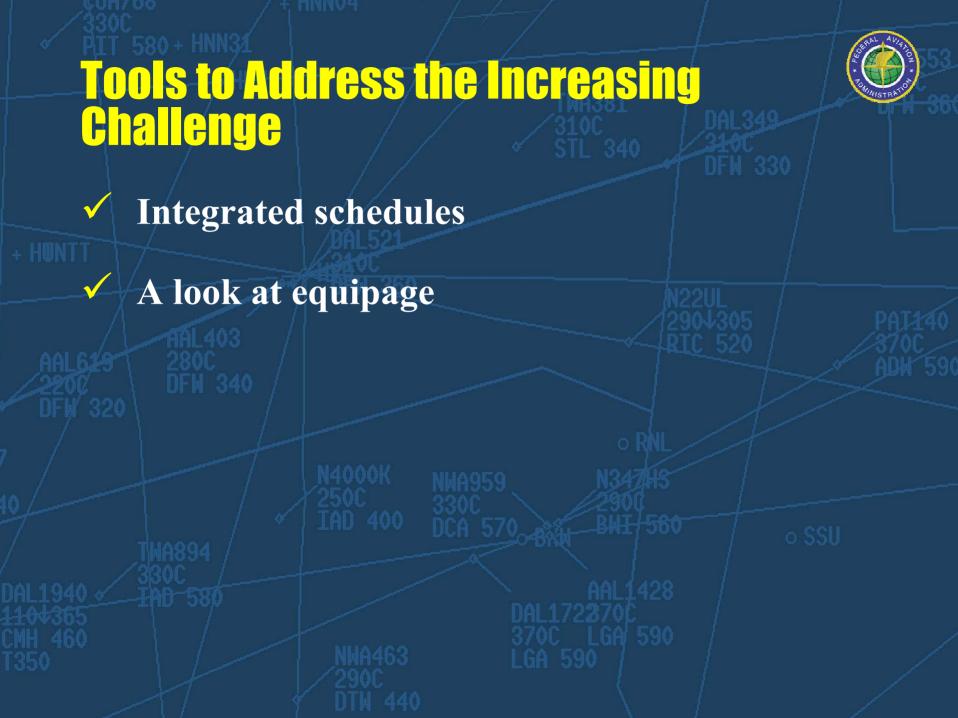


Major Upgrades Require User Participation

© 2002 The MITRE Corporation. All Rights Reserved







Operational Evolution Plan

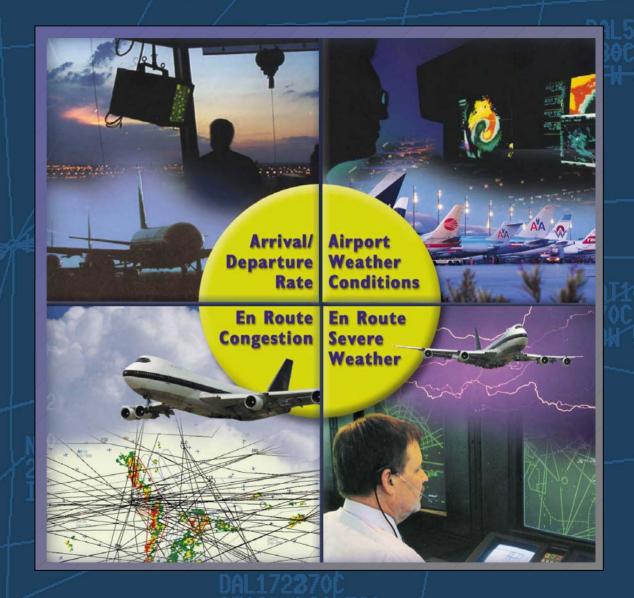
Industry Day Briefing 12/09/02

Challenges -

OEP Commitment Assurance: Implementation / Resource Integration

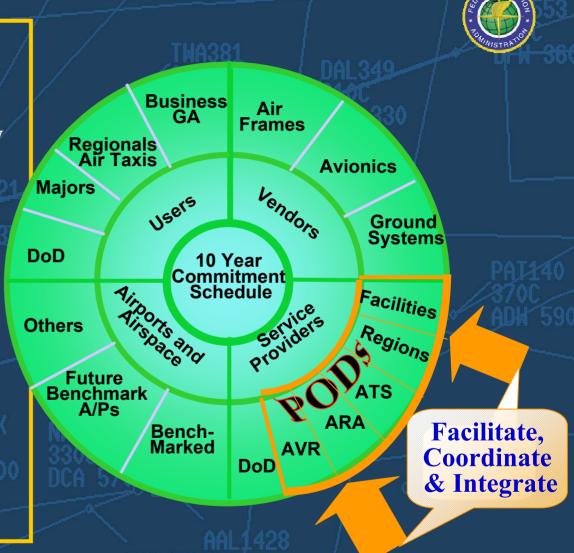
Mamie Mallory

Operational Evolution Staff



Objectives

- ✓ Comprehensive view of OEP projects and program activities
- **✓** Critical input from stakeholders
 - Coordination and integration
 - □ Alignment of resources
 - **□** Realistic OEP milestones



OEP Implementation/Resource Integration Matrix



OEP QUAD		POD/SECONDARY CONTACT	PHONE/ LOCATION	SUPPORT OFFICES	ACE	AEA	AGL	ANE	ANM	ASO	ASW	AWP	AAL
		inal Separation in the Sou				HLF.	HUL	FILL	Finan	HJV	Horr	ZOA '05	
30/30 Expansion; also AAL				The state of the s	ZNY						ZOA	Region- wide	
		er Preferred Routing		Thornton, AO se Schmokel		202-220-					Interagend	cy IPT	
Confli	ict Identification and	/ Planning:											
User F	User Request Evaluation Tool (URET)					ZNY '04	ZMP '03	ZBW '04	ZDV '03 ZLC '03 ZSE '04	ZMA '04	ZFW '03 ZAB '03 ZHU '04	ZOA '04 ZLA '04	_
	ict Resolution and Pl												
		/Problem Analysis Resolu	lution and Ran	iking (PAAR), t	trial 6, '02								
0.000_4	AW-1 Maintain Runway Use in Reduced Visibility			rillo, ATP-1 line Parker	202	2-267-9155	AND-700 AFS-400 ASC-200 AND-500 A AIR-100 ATB-20 ATS-1 AND 400 IPT for Surve				AVN-1 Surveillance		
Near T	lerm:												
		onditions (VMC) to Inst	trument Met	eorological C	ondition	s (IMC) Approx							
	RNAV Approaches							Cast list of I		oaches			
Wide F	Area Augmentation Sys	stem (WAAS)							SEA '02				
Local	Local Area Augmentation System (LAAS) Category I ((CATI)				ORD '05-'06		SEA	MEM	IAH '05-06	РНХ	
Long *	Term:												
Paralle	lel Runway Monitor (PR	RM)				JFK	CLE '04			ATL '06			
National Simultaneous Offset Instrument Approaches (SOIA) Release STL '02 SI						SFO '02							
Latera	Lateral Navigation (LNAV)/Vertical Navigation (VNAV) '04-'10 About 300/Year Nationally												
AW-2	Space Closer to Vi	isual Standards		e Cirillo, ATP- queline Parke		202-267-9155 AND-500 SF-21 SSG AOZ-1 ATB				OZ-1 ATB	-1 AIR-10	0	
Enhan	Enhanced Visual Approach SDF												
Cockp	nit Display of Traffic Inf	formation (CDTI)								SDF (Initial testing)			
				John Stapl	les, ARU-	1	,,,,,,,,			,,,,,,,			

En Route Domain Integrated Schedule (EDIS) Process

2

Weeks

EDIS

Team



En Route Systems

Oceanic/Offshore

Traffic Flow Mgmt

Weather / FS Systems

EDIS Reports

- Date
- Site
- Project
- Completed

Monthly

•OEP EIS

En Route Schedule Analysis Team

> ANI AOZ OEP ACB AUA AOP

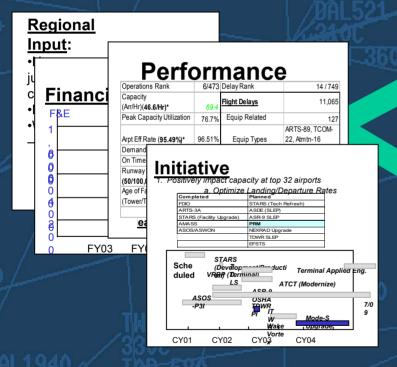
Review and assign to IPT POCs

Feedback



ATB Initiatives to Airport Matrix

Terminal Business Service

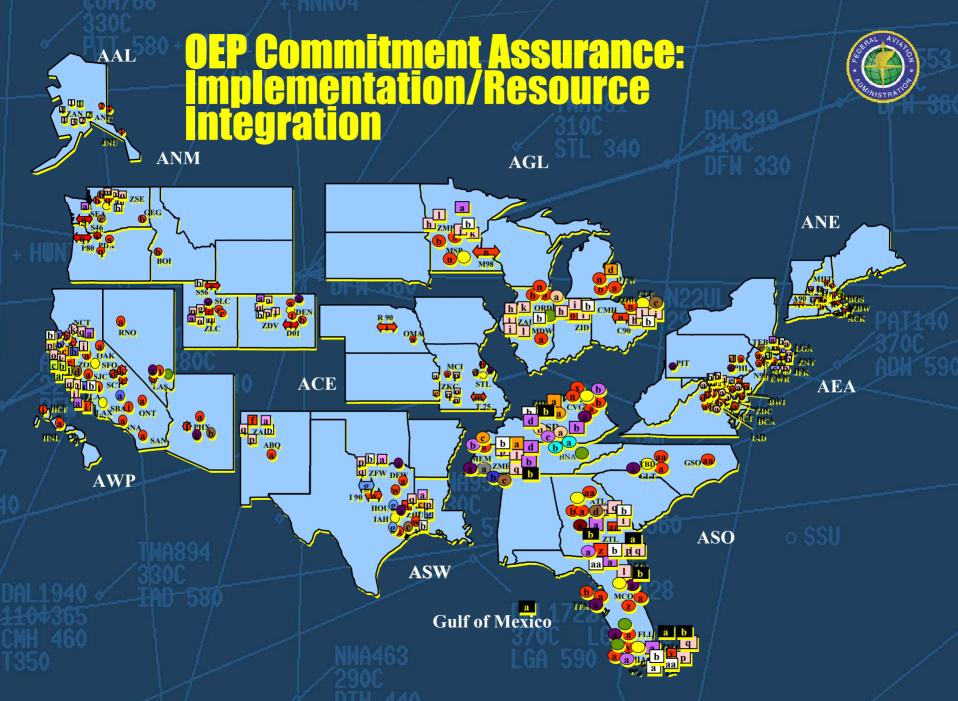


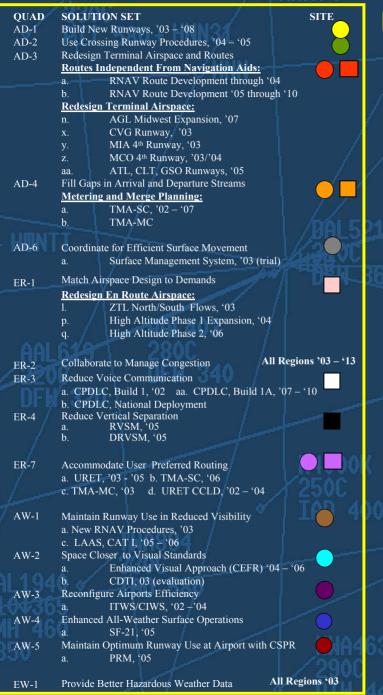
Systems

Fielded Systems	Planned Systems	Scheduled Systems
FDIO	STARS (Tech Refresh)	TDLS
ARTS-3A	ASDE (SLEP)	Terminal Applied Engineering
STARS (Facility Upgrade)	ASR-9 SLEP	ATCT (Mod)
AMASS	PRM	STARS
ASOS/ASWON	NEXRAD Upgrade	ASOS P3I
	TDWR SLEP	Wake Vortex
	EFSTS	пws
		TDWR P3I
		Mode-S Upgrade
		ASR-9 OSHA

OEP Initiatives:

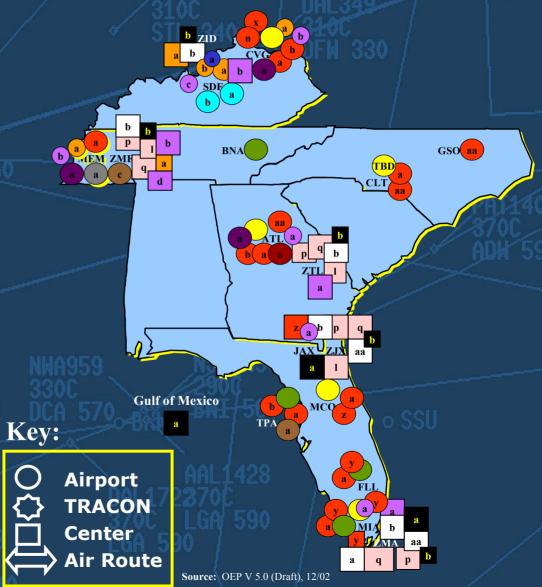
- AD-3: Redesign Terminal Airspace and Routes
- Area Navigation (RNAV) Route Development Through '04
- Coordinate Domestic (DRVSM) Redesign Program '04
- Traffic Management Advisory-Multiple Center (TMA-MC) '03
- New RNAV Procedures
- Lateral Navigation (LNAV)/Vertical Navigation (VNAV) '07-'10
- Collaborative Decision Making -Collaborative Convective Forecast Product (CCFP) Development, Upgrade '02
- RVR via CDMNet.





OEP Commitment Assurance: Implementation/Resource Integration - ASO

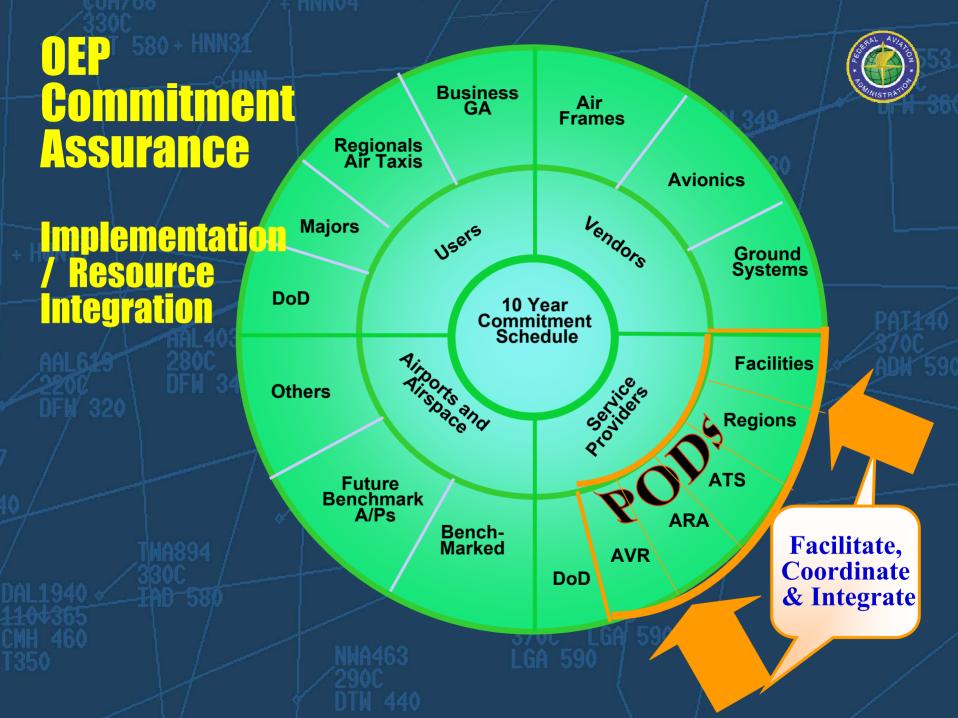




Regional Questions



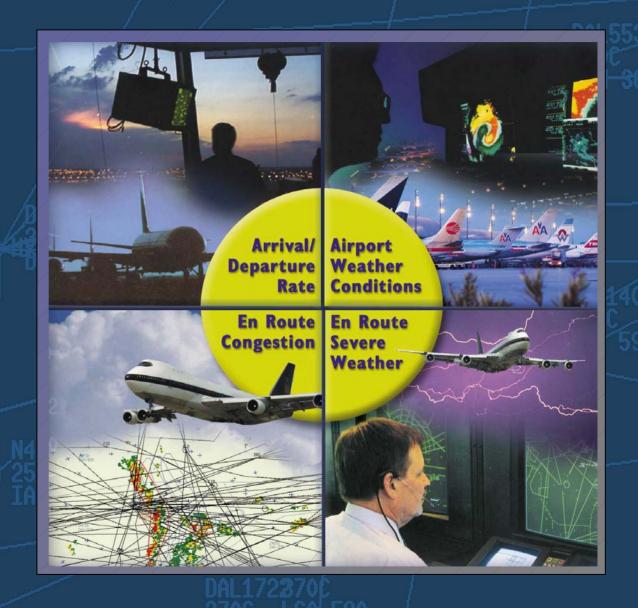
- What are the OEP solutions that are coming to my region and when?
- What is required from my region to make this solution successful? What do I need? What do I have?
- ✓ How are each of these solutions linked to existing NAS programs, other OEP solutions and other non-OEP solutions and other programs?
- ✓ Are there other OEP solutions that could potentially impact my region even though they are not coming to my region?



Operational Evolution Plan

Industry Day Briefing 12/09/02

Challenges – Equipage Ardy Williams Operational Evolution Staff



The Challenge of Equipage



Two Aircraft
Vastly
Different
Capabilities





Both aircraft can operate in the National Airspace System

– Instrument Flight Rules – to the same airports in the same weather

RTCA Tasking



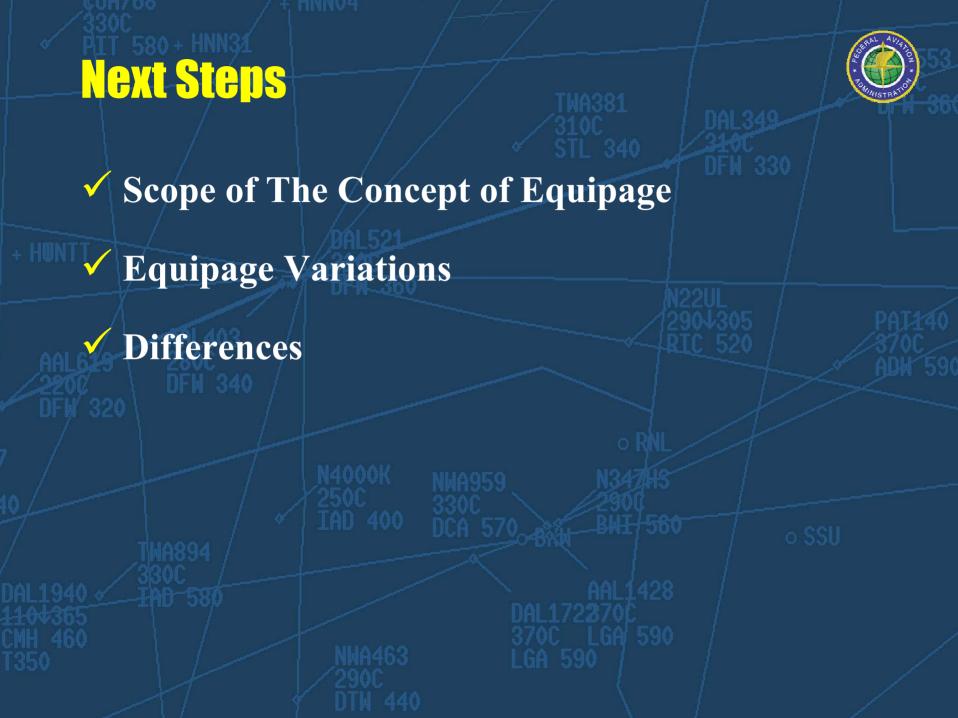
The RTCA Concept of Equipage Working Group was formed and tasked to:

- **✓** Develop a list of equipment needed
- Look into the availability of the equipment
- Recommend grouping and sequence of avionics
- ✓ All by August of 2002

RTCA Conclusions



- ✓ Of 39 solution sets 11 could affect aircraft equipage
- **✓** Four broad categories:
 - □ Domestic Reduced Vertical Separation (DRVSM)
 - Random Navigation (RNAV)
 - Controller Pilot Data Link Communications (CPDLC)
 - □ Future Air Navigation System 1 / Airbus (FANS1/A).



A Successful Concept of Equipage



✓ Cooperation between industry and government to identify systems of value

Agreement on implementation plans and mutual commitment to airborne and ground equipage timelines

AUCHORALA HNN31



	/ / / / IMPIGOL	
Noon	Welcome and Introductions V5.0 Snapshot	Amr ElSawy
1220	Accomplishments, Experience and Performance • Recognize PODs	Gisele Mohler Andy Anderegg Bob Swensson
1335	Break	22UL /
1350	Metrics Report	Cynthia Morris
1405 320	OEP Challenges • Integrated Schedules • Equipage	Charlie Keegan • Mamie Mallory • Ardy Williams
1455	N4000kBreakin959 N347HS	
1510	Looking Ahead to v6.0 Process, Timing, Milestones	Bob Lamond
1520	Questions and Answers Wrap-up DAL172270C	Charlie Keegan Other Associates Col. S. Atkins

Agenda H



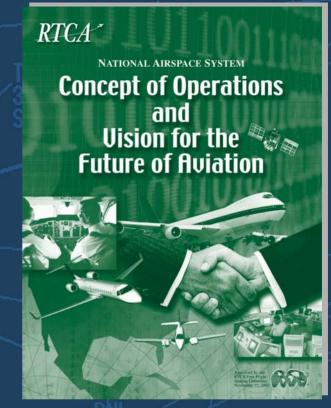
Noon	Welcome and Introductions V5.0 Snapshot	Amr ElSawy
1220	Accomplishments, Experience and Performance • Recognize PODs	Gisele Mohler Andy Anderegg Bob Swensson
1335	Break	22UL /
1350	Metrics Report	Cynthia Morris
1405	OEP Challenges • Integrated Schedules • Equipage	Charlie Keegan • Mamie Mallory • Ardy Williams
1455	N4000lBreak _{IA959} N347HS	
1510	Looking Ahead to v6.0 Process, Timing, Milestones	Bob Lamond SSU
1520	Questions and Answers Wrap-up DAL1723700	Charlie Keegan Other Associates Col. S. Atkins

Operational Evolution Plan

Industry Day Briefing 12/09/02

Looking Ahead to OEP V.6

Bob Lamond
Co-Chairman RTCA
OEP Working Group
and National
Business Aviation
Association



Lorne Cass
Co-Chairman RTCA
OEP Working Group
and Northwest
Airlines

RTCA Free Flight Select Committee OEP Working Group



- **✓** August 2002 Free Flight Steering Committee
 - Document approved: Recommendations Regarding the Concept of Equipage and Mandated versus Voluntary Considerations
 - Guidance to Select Committee: Work with the FAA to obtain the added detail needed to complete the Concept of Equipage task
- ✓ FAA Requested Comments on OEP v5.0 "Smart Sheets"
 - ☐ <u>High level</u> comments complete and posted to RTCA web site





Process, Timing, Milestones

- ✓ Industry cross section met regularly with FAA from Sep Nov
- **√** Will resume in Jan/Feb timeframe
- "In-depth" drill down of Solution Sets after "standardization" applied
- ✓ Spring '03 target date for added detail to support equipage recommendations for the first Solution Set; others to follow after that consistent with the RTCA OEP Working Group participants' capability to support meetings.

AUGNOS HNN31



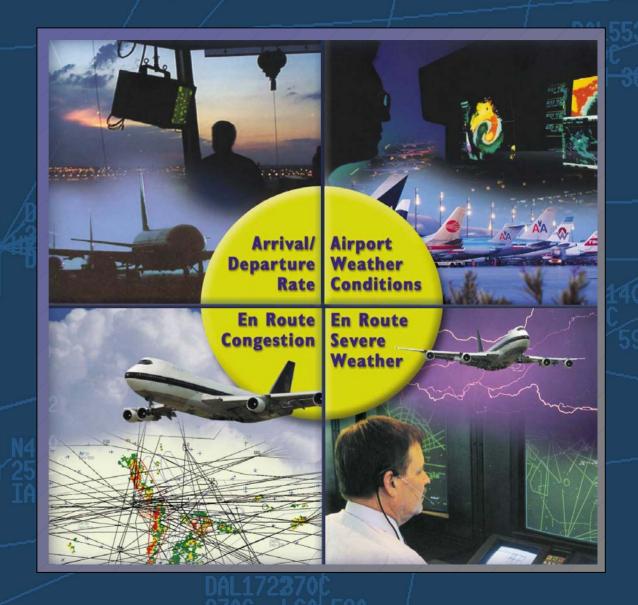
	/ / / / / IMDOL	
Noon	Welcome and Introductions V5.0 Snapshot	Amr ElSawy
1220	Accomplishments, Experience and Performance • Recognize PODs	Gisele Mohler Andy Anderegg Bob Swensson
1335	Break	22UL /
1350	Metrics Report	Cynthia Morris
1405	OEP Challenges •Integrated Schedules • Equipage	Charlie Keegan • Mamie Mallory • Ardy Williams
1455	N4000kBreak _{IA959} N347HS	
1510	Looking Ahead to v6.0 Process, Timing, Milestones	Bob Lamond
1520	Questions and Answers Wrap-up DAL172370C	Charlie Keegan Other Associates Col. Sheryl Atkins

Operational Evolution Plan

Industry Day Briefing 12/09/02

Q&A Charlie Keegan

FAA Associate
Administrator
Research &
Acquisitions and
Director
Operational
Evolution Staff

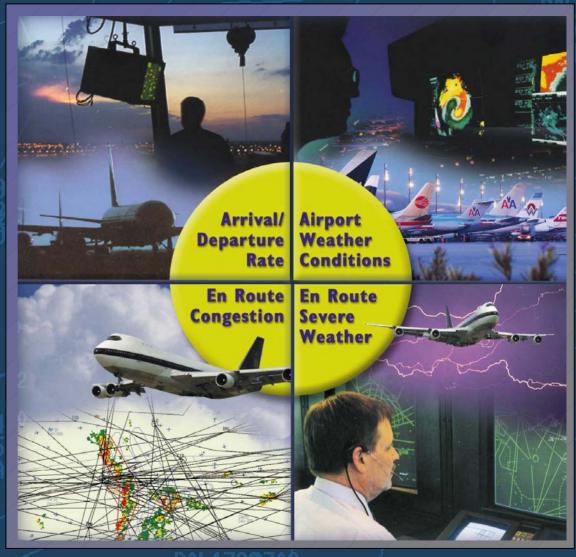


330C PIT 580+ HNN31

Operational Evolution Plan

Industry Day

Thank you for your time and commitment



370C LGA 590 LGA 590